

Remarks/Arguments:

The present invention relates to driving a plasma display panel. Specifically, during an abnormal charge erasing part in an initialization period, a bipolar rectangular waveform is applied to the scan electrodes.

On page 2, the Official Action rejects claim 1 under 35 U.S.C. 112, second paragraph as being indefinite. Specifically, the Official Action states that the limitation of "the first initialization period" has insufficient antecedent basis. Thus, Applicants have amended claim 1 to delete the recitation of "first." Withdrawal of the rejection is respectfully requested.

On page 2, the Official Action rejects claim 1 under 35 U.S.C. 103(a) as being unpatentable over Nakamura (U.S. Publication No. 2002/0021264) in view of Kim (U.S. Patent No. 7,109,951). It is respectfully submitted, however, that the claims are patentable over the art of record for the reasons set forth below.

Nakamura teaches a method for driving a plasma display panel. Specifically, Nakamura teaches an ascending ramp and descending ramp waveform. In related art, Kim teaches a method and apparatus for driving a plasma display panel. Specifically, Kim teaches a wall charge control period where a positive rectangular waveform is applied to the scan electrode. This positive rectangular waveform goes from the ground potential to a positive potential.

Applicants' invention, as recited by claim 1 (Emphasis Added), includes a feature which is neither disclosed nor suggested by the art of record, namely:

... wherein, each of the initializing periods for performing the all cell initializing operation has an abnormal charge erasing part which causes self-erasing discharge ...

... the abnormal charge erasing part applying a positive rectangular waveform voltage followed by applying a negative rectangular waveform voltage to the scan electrodes ...

Claim 1 relates to the application of a bipolar rectangular waveform which alternates between positive and negative polarity in order to control wall charge. Specifically, the bipolar rectangular waveform is applied to the scan electrodes during an abnormal charge erasing part of an initialization period. This feature is found in the originally filed application on pages 9 and

10 and furthermore in Fig. 4 as the abnormal charge erasing part. No new matter has been added.

On page 4, the Official Action suggests that Kim teaches an abnormal charge erasing part wherein a bipolar rectangular waveform is applied to the scan electrode. Specifically, the Examiner cites the wall charge control period in Fig. 8 of Kim where a rectangular waveform is applied. After reviewing the wall charge control period in Fig. 8 of Kim, Applicants respectfully disagree with the Examiner. Kim's rectangular waveform in the wall charge control period is not bipolar (it goes from ground to a positive voltage and is not negative). Specifically, the rectangular waveform in the wall charge control period of Fig. 8 goes from a ground potential to a positive voltage potential V_s . This feature is supported in Col. 8, lines 60-67 of Kim ("*in the wall charge control period, the scan electrodes Y are supplied with a rectangular control pulse PP rising from ground voltage GND until a sustain voltage V_s* ").

The only time Kim suggests a bipolar rectangular waveform is during the address period. The address period, however, is not initialization when wall charge is controlled. Thus, the bipolar rectangular waveform applied during the address period of Kim is not the same as the bipolar rectangular waveform applied during the abnormal wall charge erasing part recited in Applicants' claim 1.

Applicants' claim 1 is different than Kim because a bipolar rectangular waveform is applied to the scan electrode during an abnormal charge erasing period ("*wherein, each of the initializing periods for performing the all cell initializing operation has an abnormal charge erasing part which causes self-erasing discharge in the discharge cells having excessive wall charge accumulated therein, the abnormal charge erasing part applying a positive rectangular waveform voltage followed by applying a negative rectangular waveform voltage to the scan electrodes*"). As shown in Applicants' Fig. 4, there is an abnormal charge erasing part of an initialization period. During the abnormal charge erasing part, a bipolar rectangular waveform is applied to the scan electrodes. Specifically, the rectangular waveform is pulsed to a positive voltage V_m and then pulsed to a negative voltage V_a . Therefore, there is a positive rectangular waveform and a negative rectangular waveform both applied during the initialization period for erasing abnormal charge. This feature is supported on at least page 10, lines 5-15 of Applicants' specification ("*after positive voltage V_M smaller than a discharge starting voltage is applied for 5-20 microseconds, negative voltage V_A is applied for a short period of 2-3 microseconds*").

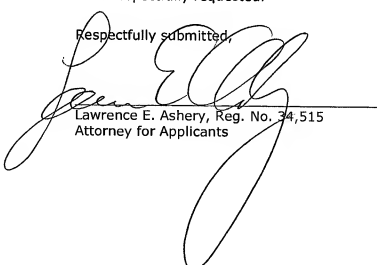
Neither Nakamura nor Kim nor their combination suggest Applicants' bipolar rectangular waveform applied in the abnormal charge erasing part of the initialization period. Thus, the combination of these references is deficient in suggesting the features of Applicants' claim 1.

It is because Applicants include the feature of *"wherein, each of the initializing periods for performing the all cell initializing operation has an abnormal charge erasing part which causes self-erasing discharge in the discharge cells having excessive wall charge accumulated therein, the abnormal charge erasing part applying a positive rectangular waveform voltage followed by applying a negative rectangular waveform voltage to the scan electrodes"*, that the following advantages are achieved. An advantage is the ability to erase abnormal charge of a discharge cell which has accumulated abnormal wall charge in the scan electrode. Also, an advantage is to prevent the discharge cell from performing faulty discharge during the sustain period, thereby realizing high quality image display. Accordingly, for the reasons set forth above, claim 1 is patentable over the art of record.

New dependent claims 2-8 have been added to the application. Dependent claims 2-8 include all of the features of claim 1 from which they depend. Thus, claims 2-8 are also patentable over the art of record for the reasons set forth above. No new matter has been added.

In view of the amendments and arguments set forth above, the above identified application is in condition for allowance which action is respectfully requested.

Respectfully submitted,



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